

The most ancient grammatical work extant for the Tibetan language is that made by "SAMBOTA" in the seventh century. Its Tibetan name is: "*Lung-du-ston-pa-sum-chu-pa*" and "*r,Tags-kyi-Pjug-pa*" or grammatical introduction in thirty slókas, and the adding of the characteristic letters (for the formation of the several cases of nouns, &c.)

Both these treatises are very short, making not more than three or four small leaves. They give little information, and are interesting only on account of the grammatical terms. But there are now many commentaries on this original text, composed by the authors, whose names here follow, as: *Dvu-pa-bLo-gsal*, *Lo-ch'hen-Nam-Mkhah-rgya-Mts'ho*, *sNar-thang-lo-tsá-Sangha-Shri*, *Yar-hbrog-pa-rin-ch'hen-tog*, *dgé-yé-va-ts'hul-k'hrims-Sengé*, *Pan-ch'hen-gser-mdog-chan-pa*, *dpah-vo-gtsug-lag H,p'hreng-va*, *Zur-Mk'har-va-bLo-gros-rgyal-po*, *Rab-hbyams-smra-va-ch'hos-rgyal*, *Hol-pa-rab-hbyams*, *Sman-lung-pa-bLo-moh'hogrdo-rjé*, *Zha-lu-lo-tsá-va-ch'hos-skyong-Bzang-po*, *Yha-lu-pa-ch'hos-legs*, *Byams-gLing-Bsod-nams-rnam-r,gyal*, *Kun-mk'-hyen-go-ram-pa*. (These two last have commented only the "*Sum-Stchu-pa*.") *Zag-lung-ch'hos-rjé*, *Rab-hbyans-pa-jam-gral*, *K'ha-rag-sprul-sku*, *Drung-yig-hjam-Dvyangs*, (these have written answers to some proposed questions respecting grammar). *Pan-ch'hen-dkon-Mch'hog-ch,hos-grags*, (he wrote in the seventeenth century, under this title; "*Légs-Bshad-snang byed-norbu*" on sixty-four leaves.)

SITU, or *LDOM-BU-PA* of *Derghé* in *Kham-yul*, wrote in the last century, on eighty-six leaves. The title of his grammar is: "*mk'has-pahi-mgul-rgyan-mu-tig-phreng-mdses*" (a beautiful necklace of pearls for a neck ornament of the learned).

There are yet several other grammatical works on the language of Tibet.

A. Cs.

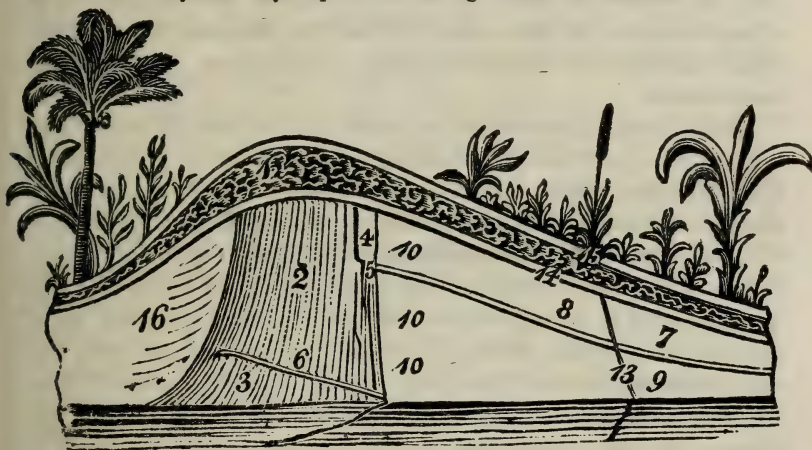
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VI.—Section of a Hill in Cuttack supposed to be likely to contain Coal. By M. KITTOE, Esq.

[In a letter addressed to J. McCLELLAND, Esq. Secretary Coal Committee.]

I have the pleasure to forward a sketch (section) of a hill called "*Newráj*," where I had expected to find coal, but have been unsuccessful; the hill, however, presents such striking features, that I deem it worthy the notice of a geologist, and address you accordingly. I have forwarded specimens [a list of which is hereto annexed] to the Secretary of the Asiatic Society, who will deliver them to you for examination, after which I request the favour of your informing me whether or not coal is likely to be found beneath the very black slate, (marked K)?

Also, whether it is likely to occur beneath the brown slate (J), in samples of which (obtained fourteen or fifteen feet below the surface at a village in a valley two miles inland south from *Newrij*.) I have found delicate veins of coal? Again, I should feel greatly obliged by your giving me instructions as to the nature of the rocks, beneath (or near to) which coal beds usually occur in this country? If there are any specimens available in the museum, I beg you will oblige me by forwarding some samples to me, labelled, and at the same time you will favour me with the names, &c. of the different specimens now forwarded, lettered as they are, my duplicates having the same labels.



A reply to the above at your earliest convenience will much oblige your most obedient servant.

Cuttack, Nov. 8, 1837.

(No. 1.) *A.* Laterite of Stirling, vide pp. 177-178, As. Res. volume, headed, on Orissa proper or Cuttack.

(2.) *B.* (3.) *C.* Upper courses of the rock just below the lower part of the rock next the water degenerating into clay.

(4.) *E.* (5.) *F.* Earth mixed with others of a yellowish hue like fuller's earth in taste and appearance, and resting between the black slate and the hard rock.

(6.) *G.* Vertical dyke between the rock and the slate imbedded in the fuller's earth.

A vein fusing through the hard rock at a right angle averaging 19 feet thick.

(7.) *H.* Yellow clay slate above the brown slate.

(8.) *I.* Brown slate, continuation of the black.

(9.) *J.* Pink slate, continuation of the brown.

(10.) *K.* Black slate of three kinds, the soft being the lowest.

(11.) *L.* Specimens of the vein which runs the whole length of the slate rocks, varying in color and thickness; average thickness 9 inches.

(12.) *M.* Piece found in the black slate.

(13.) *N.* Specimen of dyke (vertical) through the slate.

The other specimens forwarded are from *Mahánadí* and *Kutjooree*.

(1) Laterite, (2) speckled rock apparently volcanic, (3) ditto softer, (4) earth between the slate and rock, (5) dike of calcareous substance, (6) lava? (7) yellow clay slate, (8) brown slate, (9) pink slate, (10) black slate, (11) vein of various colors principally red, (13) dike through the slate, (14) marl between the rocks and the laterite, varying in thickness, (15) upper stratum of soil, (16) sandstone rock which continues for 50 or 60 miles towards *Ganjam*.

The above is merely a rough sketch to exhibit the different formations as exposed to view: the whole is without measurement. The extreme height of the hill is about 120 feet from the water level. Should it be required I shall be happy to make a more correct plan by actual measurement.

*Neuráj* is about seven miles in a direct line (due west) from Cuttack; it is at this spot that the *Mahánadí* throwing off its branch called the *Kutjooree*, finally quits the hilly country and the great valley hence to *Burmool*. The natives look on this curious rock as the work of "SIVA" under the denomination of "*Siddhéswar*" to whom a temple (of great antiquity) is dedicated, and situated at the top of the rock, the lower story of it, as well as the enclosure or terraces are hewn out of the solid laterite rock, in which there are (besides) several caves, formerly inhabited by *rishís* (ascetics). The black rock is exported to *Poooree* for the purpose of making the "*tillak*," or frontal mark of the Hindus; the red, yellow, pink, &c. &c. are used to paint the houses in the vicinity. The sandstone does not come down to the water's edge but rests on the other rock at a short distance inland; indeed the rock washed by the river extends but a very short distance, when it joins on the range of coarse sandstone hillocks, which extend to the south towards the *Chilca* lake, including *Kandgirri*, *Kürdā*, &c. and across the *Mahánadí* from *Undharkot* on the bank, towards *Dakhannál* in a northerly direction; westerly, they extend as far as *Dhompáragarh* on the right bank, and *Barramba* on the left. The rock dipping and passing under the bed of the *Mahánadí*. Many valleys or basins are formed by these hills on both sides of the river; in some places the hillocks are but 30 or 40 feet high, the beds of sandstone being comparatively thin, of a coarse grain, resembling gritstone; it has numerous quartz pebbles of all sizes imbedded in it: it usually rests on shingle, and has a superstratum of the same kind; which again appears to rest on indurated clay slate.

Note.—By Dr. McClelland.

The hill of *Newráj* described by Mr. KITTOE in the accompanying letter, is situated seven miles in a direct line due west of *Cuttack* near the confluence of the *Kutjooree* with the *Mahánadi* at the exit of the latter from the hills; and appears from an examination of the small but interesting collection of specimens procured by Mr. KITTOE to be, as he has accurately described it, volcanic.

The centre of the hill is formed of a massive dyke (2,) thrown up from below, and consisting of a dark green trachyte of a somewhat coarse glossy character with minute vesicles containing a soft earthy matter, which is removed by exposure (6.) The lower portion of this rock (3), where it is exposed to the action of air and moisture, decays like green-stone, yielding a similar clay.

On one side of the dyke there is an abrupt abutment of sandstone (16), which forms an extensive undulating country on the west, south and north of *Newráj*; and on the other side a bed of drawing slate changing into yellow (7,) brown (8,) red (9,) and black chalks (10, 10, 10,) which might be used with advantage in the manufacture of paints and pencils. Mr. KITTOE indeed states, that the black drawing slate is exported to *Pooree* for the purpose of making the *tillak*, or frontal mark of the Hindus, and that the other kinds are used in the neighbourhood by the natives for painting their houses. I do not think that these chalks are at all inferior (especially the black) to the best kinds imported to England.

The annexed copy of Mr. KITTOE's sketch of the section of *Newráj* hill, I have made by using one of his rough geological specimens of black chalk instead of a pencil.

Between this last bed and the dyke, there is a true vein filled up apparently from above by scaly fragments of drawing slate and calcareous matter (5); this rent has evidently been formed in the centre of the hill by the elevation of the dyke from below, and some distance from this the slate is divided by a vein of a different nature (13) from the last, occasioned by the separation of the lower convex surface of the disturbed mass; this vein is composed of fragments of primary clay slate mechanically intermixed with plates of silvery mica, ingredients which must have been derived from below.

Another interesting peculiarity, and one for which it is more difficult to account in this section, is a vein of black glossy trachyte, extended obliquely from the drawing slate at the water's edge across the great dyke, dividing it nearly in a horizontal direction.